

Three Way Analysis of Variance

Data source: Data 1 in Notebook1

Balanced Design

Dependent Variable: Ln(x)

Normality Test (Shapiro-Wilk): Passed (P = 0,149)

Equal Variance Test (Brown-Forsythe): Failed (P < 0,050)

Source of Variation	DF	SS	MS	F	P
Jenis Beras	2	2,373	1,187	5354,749	<0,001
Cara masak	1	0,0337	0,0337	152,252	<0,001
Lama penyimpanan (jam)	3	0,210	0,0701	316,211	<0,001
Jenis Beras x Cara masak	2	0,000996	0,000498	2,247	0,128
Jenis Beras x Lama penyiampa	6	0,00408	0,000681	3,072	0,022
Cara masak x Lama penyiampa	3	0,000728	0,000243	1,094	0,371
Jenis Beras x Cara masak x Lam	6	0,00146	0,000244	1,100	0,391
Residual	24	0,00532	0,000222		
Total	47	2,630	0,0560		

The main effects for Jenis Beras cannot be properly interpreted since the size of the factor's effect depends upon the level of another factor.

The difference in the mean values among the different levels of Cara masak are greater than would be expected by chance after allowing for the effects of differences in Jenis Beras and Lama penyimpanan (jam). There is a statistically significant difference (P = <0,001). To isolate which group(s) differ from the others use a multiple comparison procedure.

The main effects for Lama penyimpanan (jam) cannot be properly interpreted since the size of the factor's effect depends upon the level of another factor.

The effect of different levels of Jenis Beras does not depend on what level of Cara masak is present. There is not a statistically significant interaction between Jenis Beras and Cara masak. (P = 0,128)

The effect of different levels of Jenis Beras depends on what level of Lama penyimpanan (jam) is present. There is a statistically significant interaction between Jenis Beras and Lama penyimpanan (jam). (P = 0,022)

The effect of different levels of Cara masak does not depend on what level of Lama penyimpanan (jam) is present. There is not a statistically significant interaction between Cara masak and Lama penyimpanan (jam). (P = 0,371)

All Pairwise Multiple Comparison Procedures (Tukey Test):

Comparisons for factor: **Jenis Beras**

Comparison	Diff of Means	p	q	P	P<0,050
Beras Putih vs. Beras Hitam	0,544	3	146,283	<0,001	Yes
Beras Putih vs. Beras Merah	0,258	3	69,238	<0,001	Yes
Beras Merah vs. Beras Hitam	0,287	3	77,045	<0,001	Yes

Comparisons for factor: **Cara masak**

Comparison	Diff of Means	p	q	P	P<0,050
Rice cooker vs. Dandang	0,0530	2	17,450	<0,001	Yes

Comparisons for factor: **Lama penyimpanan (jam) within Beras Putih**

Comparison	Diff of Means	p	q	P	P<0,050
0,000 vs. 6,000	0,156	4	20,998	<0,001	Yes
0,000 vs. 3,000	0,0682	4	9,163	<0,001	Yes
0,000 vs. 1,000	0,0174	4	2,344	0,367	No
1,000 vs. 6,000	0,139	4	18,654	<0,001	Yes
1,000 vs. 3,000	0,0508	4	6,818	<0,001	Yes
3,000 vs. 6,000	0,0881	4	11,836	<0,001	Yes

Comparisons for factor: **Lama penyimpanan (jam) within Beras Hitam**

Comparison	Diff of Means	p	q	P	P<0,050
0,000 vs. 6,000	0,207	4	27,856	<0,001	Yes
0,000 vs. 3,000	0,116	4	15,642	<0,001	Yes
0,000 vs. 1,000	0,0527	4	7,079	<0,001	Yes
1,000 vs. 6,000	0,155	4	20,777	<0,001	Yes
1,000 vs. 3,000	0,0637	4	8,563	<0,001	Yes
3,000 vs. 6,000	0,0909	4	12,214	<0,001	Yes

Comparisons for factor: **Lama penyimpanan (jam) within Beras Merah**

Comparison	Diff of Means	p	q	P	P<0,050
0,000 vs. 6,000	0,158	4	21,193	<0,001	Yes
0,000 vs. 3,000	0,0825	4	11,080	<0,001	Yes
0,000 vs. 1,000	0,0225	4	3,022	0,170	No
1,000 vs. 6,000	0,135	4	18,171	<0,001	Yes
1,000 vs. 3,000	0,0600	4	8,059	<0,001	Yes
3,000 vs. 6,000	0,0753	4	10,112	<0,001	Yes

Comparisons for factor: **Jenis Beras within 0**

Comparison	Diff of Means	p	q	P	P<0,050
Beras Putih vs. Beras Hitam	0,511	3	68,624	<0,001	Yes
Beras Putih vs. Beras Merah	0,252	3	33,922	<0,001	Yes
Beras Merah vs. Beras Hitam	0,258	3	34,702	<0,001	Yes

Comparisons for factor: **Jenis Beras within 1**

Comparison	Diff of Means	p	q	P	P<0,050
Beras Putih vs. Beras Hitam	0,546	3	73,358	<0,001	Yes
Beras Putih vs. Beras Merah	0,258	3	34,599	<0,001	Yes
Beras Merah vs. Beras Hitam	0,288	3	38,759	<0,001	Yes

Comparisons for factor: **Jenis Beras within 3**

Comparison	Diff of Means	p	q	P	P<0,050
Beras Putih vs. Beras Hitam	0,559	3	75,103	<0,001	Yes
Beras Putih vs. Beras Merah	0,267	3	35,839	<0,001	Yes
Beras Merah vs. Beras Hitam	0,292	3	39,263	<0,001	Yes

Comparisons for factor: **Jenis Beras within 6**

Comparison	Diff of Means	p	q	P	P<0,050
Beras Putih vs. Beras Hitam	0,562	3	75,481	<0,001	Yes
Beras Putih vs. Beras Merah	0,254	3	34,116	<0,001	Yes
Beras Merah vs. Beras Hitam	0,308	3	41,365	<0,001	Yes

Power of performed test with alpha = 0,0500: for Jenis Beras : 1,000

Power of performed test with alpha = 0,0500: for Cara masak : 1,000

Power of performed test with $\alpha = 0,0500$: for Lama penyimpanan (jam) : 1,000
Power of performed test with $\alpha = 0,0500$: for Jenis Beras x Cara masak : 0,245
Power of performed test with $\alpha = 0,0500$: for Jenis Beras x Lama penyimpa : 0,627
Power of performed test with $\alpha = 0,0500$: for Cara masak x Lama penyimpa : 0,0646